**Feedyard Pen Surface Management (Indoor)**

Feedyard pen surface management can have a significant impact on cattle health and performance. Excessive mud in the pen has been shown to decrease cattle ADG (25 to 37%), DMI (15 to 30%), and FE (20 to 33%)1,2. Respiratory problems for both cattle and humans occur more frequently and treatment costs increase under compromised air quality environments, including too wet and those that are too dry and the presence of increased ammonia concentrations. Proper management of an indoor feeding system should be devoted to suppress dust and/or ammonia volatilization. Additionally, pens with excessive manure can be a challenge to both animal welfare and employee safety. Principle-based animal husbandry practices such as appropriately maintained pens have been shown to reduce mud/manure and/or dust on cattle sent to slaughter, which may reduce potential carcass contamination from the hide. Maintaining records of pen surface management activity can be a useful tool for feedyard management when making decisions on long term infrastructure improvement plans by identifying chronic problem areas.

General guidelines for indoor pen surface management are:

* Manure depth should not consistently be deeper than the ankles of cattle in pens.
* An elevated area within the pen may be constructed to allow cattle to have a place to lie down in an indoor feeding operation.
* All bunk aprons should be scraped/cleaned as needed so cattle do not have to stand in manure while eating at the bunk.
* The pen surface-bunk apron interface should be maintained so that cattle do not have an excessive step up to the apron.

**Protocol for Feedyard Pen Surface Management of Deep-Bedded Structures**

1. Since natural ventilation is used in all these facilities, it is recommended to have high roofs to increase the air space and allow warm, moist are to rise and escape from the building.3

2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ will be responsible for ensuring that pen aprons are scraped/cleaned at least \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ per week (or when pen surface conditions warrant) to reduce wet manure, and if applicable each pen will be scraped/cleaned after each “turn” of cattle.

3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ will monitor the areas where the larger equipment cannot reach around the water tanks, bunks, and other structures to prevent excessive build-up of manure.

4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ will be responsible to provide bedding that ensures pen surface conditions are acceptable.

5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ will use to scrape/clean pens, and they will not be used for feed handling unless thoroughly cleaned and disinfected prior to handling feed.

6. If pen surface management records are kept, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ will be responsible for maintaining records.

**UALITY ASSURANCETM FEEDYARD ASSESSMENT**

**Protocol for Feedyard Pen Surface Management of Deep-Pitted Structures**

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_will be trained in the proper precautions and hazards associated with the management of deep-pit systems.\*

2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ will be responsible for ensuring that pen aprons are scraped/cleaned at least \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ per week (or when pen surface conditions warrant) to reduce wet manure and each pen will be scraped/cleaned after each “turn” of cattle or yearly.

3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ will monitor the areas where the larger equipment cannot reach around the water tanks, bunks, and other structures to prevent excessive build-up of manure.

4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_will be responsible for ensuring that the pit(s) is/are cleaned at least \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ per year, and properly land applied.

5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_will use to scrape/clean pens and they will not be used for feed handling unless thoroughly cleaned and disinfected prior to handling feed.

6. If pen surface management records are kept, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ will be responsible for maintaining records.

*\* Special care should be taken to never enter a deep-pit due to the risks of toxic and deadly gases, such as hydrogen sulfide, ammonia, and others that may be present and accumulate, causing asphyxiation. To ensure safety, extreme caution should be exercised near and around pitted systems.*

*1Bond, T.E., W.N. Garrett, R.L. Givens and S.R. Morrison. 1970. Comparative effects of mud, wind and rain on beef catte performance. Paper No. 70-406. Annu. Meeting A.S.A.E.*

*2National Research Council. 1981. Effect of environment on nutrient requirements of domestic animals. National Academy Press, Washington, DC.*

*3Iowa State University, 2015. Beef Feedlot Systems Manual*